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**Patent and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/875,424	07/28/97	HENRICSON	K 30-440

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IM31/0303

EXAMINER
ALVO, M

ART UNIT	PAPER NUMBER
1731	

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
**08/875,424**

Applicant(s)  
**HENRICSON et al**

Examiner  
**Steve Alvo**

Group Art Unit  
**1731**



☒ Responsive to communication(s) filed on Dec 17, 1998

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 16-19, 21, 22, 24-30, and 32-46 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 16-19, 21, 22, 24-30, and 32-46 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-19, 21-22, 24-30 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 94/20674 in view of EP 0 622 491 with or without MARECHAL.

WO 94/20674 teaches bleaching the pulp in an cooking -O-Q-P-Pa bleaching sequence, wherein the Q-stage (e.g. the bleaching sequence which includes the Q-stage) can be preceded by an A-washing stage, thus forming an A-Q-P-Pa or A-Q-P-P bleaching sequences, such doesn't differ from the bleach sequence of the instant process (WO 94/20674, page 5, lines 4-5; and page 11, lines 6-17 and Examples 1-4). It would have been especially obvious to have the AQ stage in separate and/or the same stage as such is taught by EP 0 622 491 (page 3, lines 24-27). See instant claim 34 for Cooking-O-OQ-P sequence. The use of two peroxide stages would have been obvious as WO 94/20674 teaches that additional bleach stages could be followed with one of the following stages (E, P, Eo, Ep, Eop, page 12, lines 13-21) and could be further supplemented by using a P, D and/or H stage during the sequence (claims 19 and 33). See Example 2R for an O-Q-O-P blOach sequence. See Examples 5 and 6 for OQPPaEp, OQP and OQPP bleach sequences. See WO 94/20674, page 5, for conditions in the acid and/or chelating stages; see pages 6 and 7 for conditions in the P-stage; see pages 10 and 11 and Examples 3 and 4 for using a 4th stage with peroxyacid (A). It would have been obvious to the artisan to control the

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conditions in each stage and the size of the reactor depending upon the desired amount of bleaching in each stage and the total amount of delignification and bleaching desired. The addition of magnesium and calcium would have been obvious from the teachings of EP 0 622 491. Claim 19 and 36-46 is rejected as EP 0 622 491 teaches using an O-A-Q-P bleach sequence and teaches that chlorine dioxide during the chelating stage (Example 8). It would have been obvious to chlorine dioxide in the chelating stage of WO 94/20674 and/or EP 0 622 491 to further delignify and bleach the pulp. The adjusting the pH between stages to the optimum pH for the next stage would have been obvious to the artisan. See Examples 1-5 of EP 0 622 491, Table VII for using 5-30 kg/ton active chlorine in the chlorine dioxide stage., see Examples 4 and 5 of the same Table for using 10-20 kg/ton peroxide. It would have been obvious to size the reaction vessels in each stage depending upon the amount of material and time required in each reactor (tower). See EP 0 622 491, Example 7 for 105 degrees C and obviously corresponding high pressure. The claims have been amended to "so that acid treatment decreases the kappa number". The high temperature acid treatment of WO 94/20674 and or EP 0 622 491 would also decrease the kappa number as such high temperature treatment of acids or even water is known to provide some delignification which would remove dark colored lignin and whiten the pulp. If necessary, MARECHAL specifically teaches that the lowering of kappa number during an acid pretreatment is due to the acid stage (page 266, first full paragraph). It would have been obvious to the artisan that at least some of the kappa number reduction in the process of WO 94/20674 and/or EP 0 622 491 would be due to the acid treatment as such is taught by MARECHAL.

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Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 94/20674 in view of EP 0 622 491 with or without MARECHAL as applied to claim 1 above, and further in view of JP 57-21591 and WALSH.

JP 57-21591 teaches a Q-Pa-P bleaching sequence. It would have been obvious that the Pa-stage of WO 94/20674 could precede the P-stage of WO 94/20674 as taught by JP 57-21591. It would have been obvious that the chelating agent of WO 94/20674 could be both prior to and in the Pa-stage as such is taught by WALSH (column 5, lines 4-7).

The argument that the acid stage of WO 94/20674 and/or EP 0 622 491 removes the metal ions but do not teach lowering the kappa number is not convincing. It is well known in the delignifying art that acid hydrolysis provides some delignification (removing of lignin) and thus lowers the kappa number (measurement of lignin in the pulp). EP 0 622 491 teaches using an acid treatment at a temperature up to 100 DEGREES C, a preferred time of 10-60 minutes (page 5, lines 27-30) and a preferred pH of 2.0-3.0 (page 4, lines 12-13). Such acid treatment is known in the art to lower the kappa number of the pulp (see instant specification, page 1, lines 17-24). Similar acid conditions are taught by WO 94/20674 (page 2 of translation). The argument that the acid stage of WO 94/20674 and/or EP 0 622 491 removes the metal ions but do not teach lowering the kappa number is further not convincing as EP 0 622 491 teaches that preferably a delignifying agent e.g. chlorine dioxide, can be added to the acid stage (page 5, lines 51-56). Such an acid stage would clearly delignify the pulp in addition to removing the undesired metal ions.

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It is noted that WO 94/20674 teaches that the bleaching sequence can be preceded by an acid and or sequestering wash or decontaminating pretreatment on page 4 of the translation. In addition EP 0 622 491, Table 1, Test 1 and Table II, tests 1-3 teaches an A-Q-P bleaching sequence wherein the acid treatment precedes the acid treatment.

This action is properly made final as MARECHAL was cited to teach "so that acid treatment decreases the kappa number". Previously the claims read on the acid treatment contributing to lowering the kappa number 1-9 of the bleaching process, e.g. 1-9 units lower than if acid had not been used.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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When filing an **"Official"** FAX in Art Unit 1731, please indicate in the Header (upper right) **"Official"** for papers that are to be entered into the file. The **"Official"** FAX phone number for this Art Unit is **(703) 305-7718** for all papers except amendments after final, for amendments after final the FAX number is 703-305-3599. When filing an **"Unofficial"** FAX in Group 1730, please indicate in the Header (upper right) **"Unofficial"** for Draft Documents and other Communications with the PTO that are not for entry into the file of the application. This will expedite processing of your papers. The **"Unofficial"** FAX phone number for this Art Unit (1731) is **(703) 305-7115**.

Any inquiry concerning this communication or earlier communications from the **primary examiner** should be directed to **Steve Alvo** whose telephone number is **(703) 308-2048**. The Examiner can normally be reached on Monday - Friday from **6:30 AM - 3:00 PM (EST)**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stanley Silverman, can be reached on 703-308-3837.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Group receptionist** whose telephone number is **(703) 308-0661**.

MSA  
February 28, 1999

**STEVE ALVO**  
**PRIMARY EXAMINER**  
**ART UNIT 1731**